In October 1996, former Governor George Allen committed Virginia to plant 610 miles of riparian forest buffers by 2010, an average of more than 43 miles annually. This plan, which outlines recommendations to Governor Jim Gilmore, addresses how Virginia can meet this pledge. The six objectives outlined in this plan are based on the Chesapeake Executive Council's goals and policies. The following is a description of each objective, key background information, and specific strategies. It is recommended that the plan's implementation be led by a Riparian Buffer Work Group, to be appointed by the Secretary of Natural Resources. Although the Work Group's creation is not specifically set forth as a task until Objective 3, the Work Group is referred to throughout the plan.

Objective 1- Restore Missing or Inadequate Riparian Buffers

Increase the use of all riparian buffers and restore riparian forests on at least 610 miles of stream and shoreline in the watershed by 2010, targeting efforts where they will be of greatest value to water quality and living resources.

This objective identifies programs, strategies, and other efforts to establish riparian buffers in needed areas. The most common methods are planting and natural regeneration, letting shrubs and trees seed an area naturally and grow.

Recognizing that forested buffers may not be appropriate for every setting, this initiative will promote planting and restoration of all riparian buffer types. Virginia will endeavor to track all planted and restored riparian buffers.

However, buffers will be counted as part of the 610-mile goal only if they are in Virginia's portion of the Chesapeake Bay basin and meet the standards (width, species composition, stream types, and management options) found in Appendix B. These riparian buffers must establish or expand tree and shrub vegetation 35 feet or more from the water or wetlands. The Virginia Riparian Buffer Inventory Form for tracking is in Appendix C.

Strategies

- **Identify restoration sites.** Inventory and site targeting tools will be developed using current technology, such as digital imagery and geographic information systems (GIS). Three such tools are under development:

  - The Virginia Institute of Marine Science has developed a GIS tool for targeting critical watersheds for riparian forest buffer restoration.

  - King William County has developed a GIS tool, using ArcView 3.0 software, to more specifically identify potential restoration sites.

  - The organization *American Forests* is developing a computer program to estimate forest buffer benefits, including nutrient reduction, based on site and buffer type characteristics. This software can be used to prioritize watersheds or restoration sites by identifying water quality and habitat benefits and available funding.

  Beginning as soon as the members are appointed, the Virginia Riparian Buffer Work Group will help develop, refine and promote these tools, and provide technical assistance.

- **Develop local watershed-based plans for specific actions.** Support will be provided to local endeavors to identify sites and recruit volunteers. The Work Group will coordinate with major planning efforts to promote riparian buffer restoration. These undertakings include the Tributary Strategies development process, the State process to develop Total Maximum Daily Loads (TMDLs) for impaired waters, Chesapeake Bay Program Local Government Advisory Committee's Stream Restoration Initiative, USDA-Natural Resource Conservation Service's National Conservation Buffer Initiative, *American Forest's* Global Releaf program, and the Virginia Water Quality Improvement Fund grant program.

  From available inventories, GIS and database tools can be used for targeting local priority watersheds or finding local high-priority planting sites. Potential high-priority sites should be visited to review buffer conditions and consult with landowners. Agricultural, forested, and developed land uses will need different approaches and buffer designs.

Establishing riparian buffers will be considered in the larger land management context, with many practices available to protect water quality and stream habitat. An example is farmland where a variety of conservation practices, such as grassed waterways, grass filter strips, stabilized stream crossings, and alternative water sources, should be used with a riparian buffer. Each practice helps control sediment and nutrients differently. Streambank stabilization also will be considered. Bank stabilization projects will be pursued along with riparian buffers. While these kinds of efforts may not count towards the goal of restoring 610 miles of riparian forest buffers within Virginia's Bay watershed, they are still vitally important to the overall goal of adequately buffering all streams.

- **Establish education outreach to volunteer groups.** By September 30,1998, the Work Group will review public information materials about stream restoration. They will determine if there is adequate information on how to restore, conserve and maintain a riparian buffer. By December 31, 1998, the Work Group will identify appropriate volunteer and other community organizations. By March 31, 1999, the Work Group will ensure needed stream buffer information is available for inclusion in these organizations' public information materials and training efforts.

- **Provide sufficient planting stock.** By December 31, 1998, the Work Group will conduct initial discussions with state and private plant nursery representatives about providing riparian buffer planting stock. By June 30, 1999, working in cooperation with participating nurseries, the Work Group will develop a plan and timetable for providing riparian buffer planting stock. Priorities include investigating state nursery support to allow hardwood seedling production, and gathering information on nurseries that can provide suitable buffer trees and shrubs. Opportunities to grow planting stock under contract will be pursued, and may include corporate and federal partners.

Virginia s Bay Program Riparian Forest Buffer Initiative: Annual Benchmarks

These cumulative benchmarks will be used to mark Virginia s progress toward the 610-mile goal.

Year	Cumulative Miles
2000	80
2002	150
2004	300
2006	450
2008	550
2010	610

- **Plant riparian buffers and provide maintenance information.** As requested, the Work Group will provide technical assistance on planting or restoring riparian buffers to land-owners and local governments. By December 31, 1998, the Work Group will provide *Fact Sheets* on maintaining various buffer types to participating local governments and landowners.

Objective 2- Conserve Existing Riparian Buffers

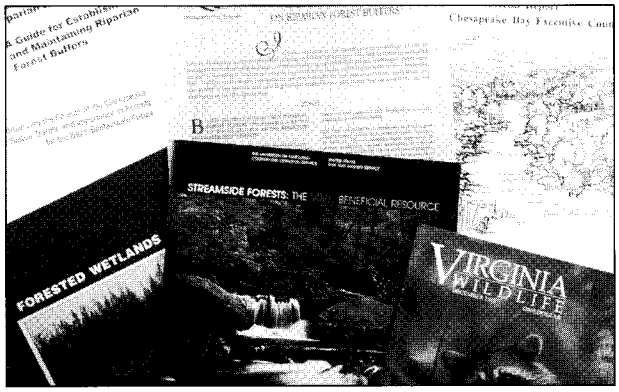
Conserve existing forests along streams and shorelines.

This initiative enhances existing conservation mechanisms, develops new ones, and pursues an integrated watershed management program to address riparian buffer protection.

Conservation strategies protect existing riparian buffers as well as newly established buffers, creating substantial long term benefits. Strategies can include protecting water quality and living resources, maintaining geomorphological stream stability, reducing degraded stream restoration costs, and furnishing greater flood protection.

This objective is more difficult to address, since most conservation programs fill the gaps rather than preserve effective measures already in place. However, there are some actions Virginia can take to track pro-active conservation measures of existing riparian buffers.

Riparian buffers can be conserved as part of broad environmental management programs such as state and federal mandates for pollution control, state partnerships for restoration of the Chesapeake Bay, and other land conservation programs. Riparian buffer conservation can



be assured through numerous public or public/private partnerships, and new incentives.

Virginia's land use decisions are made primarily by localities, so many approaches discussed involve local government efforts.

Existing Endeavors

An array of regulatory programs are already helping Virginia protect existing riparian buffers and establish ones where needed.

For example, federal and state wetlands protection programs prevent the unjustified development of wetlands along Virginia streams. Plus, many of Virginia's local governments have strong protection programs for streamside areas.

The Chesapeake Bay Preservation Act regulations implemented by localities in Tidewater, Virginia, require 100-foot wide vegetated buffers around tributary streams, tidal wetlands, and the wettest nontidal wetlands. If existing buffers are forested, the trees must be conserved. Also, these localities' comprehensive plan updates must address water quality protection methods, including riparian buffer establishment and protection. Most of these jurisdictions implement plan recommendations by including buffer protection in planning, zoning, and subdivision codes.

Urban localities have additional riparian buffer considerations because the National Pollutant Discharge Elimination System (NDGS) permits include storm sewer outfalls. The NPDGS treats runoff from roads and developed areas as controllable point source pollution discharges. An emerging effort to protect water quality from nonpoint pollution sources is Virginia's Total Maximum Daily Loads (TMDLs) program. Riparian buffers could be one measure to prevent water body pollutants from exceeding acceptable limits set through the TMDL program.

On another front, voluntary programs for conserving undeveloped land have been growing. Private land trusts, such as the Valley Conservation Council, that purchase or accept development rights donations are on the rise. Many of these conservation easement programs target riparian buffers.

Strategies

- **Document riparian buffer conservation on State-owned lands and National Forests.** A system will be established to report riparian buffer conservation ventures on state owned lands and national forests to the new tracking database (see Targeting and Tracking p. 22). In July 1998, the Virginia Department of Forestry will initiate this system by working with Virginia's two national forests and by including similar state forest activities in the database.

- **Identify riparian buffers in easements held by Land Trusts/ Conservancies.** By December 31, 1998, the Work Group will identify existing Land Trusts and Conservancies by surveys. The Work Group will (1) review typical easement language to determine if riparian buffer conditions are sufficient, and (2) develop and distribute model riparian buffer language for use in these easements.

- **Determine riparian buffers in easements due to local government tax breaks.** The 1998 General Assembly passed House Bill 1419 (Appendix D) authorizing localities to provide tax relief for certain land categories. Riparian forest buffers are included if the land is in perpetual easement.

  Communities offering this tax relief may apply for Virginia Water Quality Improvement Fund grants to restore revenue. By December 31, 1998, the Work Group will establish a communications method with localities to track riparian buffer conservation easements.

- **Determine Riparian buffers in easements through USDA programs.** By December 31, 1998, the Work Group will establish a mechanism to track these buffers.

- **Establish education outreach to volunteer groups.** By September 30, 1998, the Work Group will review public information materials about stream restoration. It will determine if there is adequate information on how to restore, conserve and maintain riparian buffers. By December 31, 1998, the Work Group will identify

appropriate volunteer organizations such as Adopt-A-Stream, Adopt-A-Bridge, to receive information on establishing riparian buffers . By March 31, 1999, the Work Group will ensure that necessary information is available to these organizations for their public information materials and training efforts.

- **Coordinate goals and priorities with state and local integrated watershed management programs.** The Bay's natural systems do not observe jurisdictional boundaries. Recognizing this, Virginia has been moving toward implementing pollution control and natural resource protection programs on a watershed basis. Most notably, Virginia is establishing a Geographic Information System and database that more effectively targets limited resources to watersheds with the greatest needs. This includes watersheds that contribute the most pollution or have streams and natural systems needing the most restoration.

State agencies implementing watershed-related programs are establishing ways to coordinate affected localities' efforts to promote effective use of resources and consistent local resources policies. To ensure riparian buffer and stream efforts receive priority, the Work Group will participate in watershed projects and promote buffer monitoring at key sites.

Objective 3- Enhance Program Coordination and Accountability

Establish mechanisms to streamline, enhance, and coordinate existing programs related to riparian buffers and riparian system conservation.

This initiative sets forth ways to effectively coordinate and encourage the multiple programs involved in Virginia's riparian buffer efforts. It identifies roles, develops public education strategies, establishes tracking devices, and promotes volunteer and private commitment.

An array of programs and individuals are involved in conserving or creating riparian buffers, which provide public benefits in many different ways. Participants come from all walks of life. They come from:

- local, state and federal government;
- nonprofit organizations, community associations, service organizations;
- business and industry; and
- private landowners.

To identify and compare major Bay state riparian forest buffer programs, an analysis was conducted. Performed during the Chesapeake Bay Riparian Forest Buffer Panel Process, the study was led by the Chesapeake Bay Commission. Here are key findings:

- Few existing programs provide a specific riparian forest buffer focus
- Many programs are unnecessarily bureaucratic, complicated and burdensome to administer; and
- Many agencies and conservation groups are involved in riparian forest buffer activity, with varying support levels

Forming the Virginia Riparian Forest Buffer Panel early in the Chesapeake Bay Riparian Forest Buffer Panel process has enhanced coordination among agencies and conservation groups. Where many other conservation programs address riparian buffers in some manner, buffers are the principle focus in only a few.

Duplication remains prevalent among some conservation programs. This is especially noticeable in financial cost-share programs for riparian buffers. A Natural Resources Conservation Service Technical Advisory Committee oversees federal cost-share applications for conservation. The Virginia Department of Conservation and Recreation administers the state Chesapeake Bay cost-share program and the Virginia Water Quality Improvement Act grant program.

Sharing experiences, information and resources can reap significant benefits and efficiencies. Such coordination can be quite challenging.

Strategies

- **Establish Virginia Riparian Buffer Work Group.** The Secretary of Natural Resources will establish this Work Group by September 1, 1998. The Work Group will oversee and coordinate the Riparian Buffer initiative. The Virginia Department of Forestry (DOF) will be the lead agency and provide staff to chair the Work Group. Other agencies to serve on the Work Group are:
  - Chesapeake Bay Local Assistance Department
  - Department of Conservation and Recreation
  - Department of Environmental Quality

- Department of Game and Inland Fisheries
- Department of Agriculture and Consumer Services
- Virginia Delegation to the Chesapeake Bay Commission
- Virginia Tech School of Forestry and Wildlife
- Virginia Institute of Marine Science
- U.S. Department of Agriculture - Natural Resource Conservation Service
- U.S. Department of Agriculture - Forest Service (National Forests in Virginia)
- Cooperative Extension Service

- **Obtain an Executive Order addressing riparian buffers on state-owned lands.** By October 31, 1998, the Work Group will formally request that the Secretary of Natural Resources ask the Governor to adopt an Executive Order by December 31, 1998. This order will require each Virginia land-holding agency to take these uniform steps:
  - Develop measurable indicators for riparian buffer restoration and conservation, consistent with Work Group guidance;
  - Establish the agency's portion of the 610-mile target for which it will be accountable
  - Coordinate the agency riparian buffer plan with the state's ongoing *Tributary Strategy* development process; and
  - Establish appropriate riparian buffers for all streams on state land by July 1, 2005 (Governor's office to approve exceptions).

- **Develop Memoranda of Agreement.** By December 31, 1998, the Work Group will develop more specific agency roles for the Virginia Riparian Buffer Initiative. This breakdown will be the foundation for coordinating agency riparian buffer programs. By June 30, 1999, each participating Work Group agency will complete a Memorandum of Agreement, outlining responsibilities, with the Virginia Department of Forestry. In addition, by September 30, 1998, Virginia will carry out a Memorandum of Agreement with *American Forests* to use the *Stream Releaf* logo in program promotion, consistent with Bay state partners.

- **Promote private sector involvement.** By October 31, 1998, the Work Group will enlist the services of *American Forests' Stream Releaf* Campaign to encourage private sector involvement in conserving and restoring riparian buffers. Also, the Work Group will use the *Business for the Bay* program to promote private sector support.

- **Designate local Department of Forestry offices and Soil and Water Conservation Districts as program field contacts.** These agencies will make appropriate referrals to participating agencies, such as the Department of Game and Inland Fisheries, the

USDA-Natural Resource Conservation Service, and the Chesapeake Bay Local Assistance Department.

To coordinate program efforts and opportunities effectively, designated agency staff will give landowners information and guidance developed by their own agency or the Work Group.

- **Provide a riparian buffer source book.** To increase public awareness about riparian buffers, the Work Group will provide a Riparian Buffer Source Book by December 31, 1998. This publication will include a riparian buffer primer, known riparian buffer programs, and priority areas for riparian buffer establishment. This resource will be updated as needed.

- **Initiate a single tracking system.** By September 1, 1998, a standardized tracking device will be instituted, with riparian buffer participants reporting progress twice a year to the Virginia Department of Forestry. To accomplish this, the Work Group will take two actions.

  First, it will publicize criteria for counting riparian forest buffer miles (Appendix B) and the standardized tracking form (Appendix C). These will be distributed through local Department of Forestry offices, local Soil and Water Conservation District offices, and participating agency Internet home pages.

  Second, the Work Group will mail tracking information to Virginia localities and other organizations, such as Land Trusts and Conservancies, and appropriate volunteer and community organizations.

- **Develop a spot-check tracking database.** By December 31, 1998, the Department of Forestry will establish this database. By June 30, 1999 the Work Group will agree on a process to spot check a certain percentage of reported riparian buffer restorations

and conservation activities. Beginning in 1999, the Department of Forestry will prepare an annual report summarizing riparian buffer restoration progress and spot check activity results. This report will be submitted to the Secretary of Natural Resources by September 30 of each year. In addition, all who provide tracking forms will receive a report.

- **Establish a program to coordinate and support volunteer activities.** By June 30, 1999, the Work Group will develop a training program for community volunteers on how to implement stream corridor management and how to establish and maintain riparian buffers.

  The Work Group will assess staffing needs for volunteer outreach and training at one or more participating agencies. Identified recommendations will be sent to the Secretary of Natural Resources by August 1, 1999, for consideration in the 2000-2002 biennium budget.

Objective 4- Enhance Incentives

Develop and promote an adequate array of incentives for landowners and developers to encourage voluntary riparian buffer retention and restoration.

This initiative identifies innovative funding sources, recommends local tax incentive legislation, and enhances funding alternatives to energize voluntary alliances in riparian buffer protection across Virginia.

In most respects, this undertaking is voluntary. Even where regulations apply locally, such as the Chesapeake Bay Preservation Act requirements, a key element to the program's success is incentives, designed to prompt large-scale participation.

Previously, these incentives have been offered by a mix of federal, state and local agencies, businesses and private non-profit organizations. Examples of these incentives are the Federal Government's Conservation Reserve Program, Virginia's Chesapeake Bay Cost-Share Program, and Use-Value Taxation.

Incentives may take many forms:
- Formal recognition expressing Virginia's appreciation for a landowner's cooperation — for example, a Governor's citation granted to participating landowners who do not request funding assistance
- Grants and cost-share payments
- Rent payments for land taken out of production or used for conservation
- Payment for seedlings and other supplies
- Low interest loans, loan guarantees and easement purchases
- Tax incentives

To determine the relationship of incentives to the success of riparian forest buffer installations, the 1996 analysis mentioned in Objective 3 evaluated such programs. The report shows that:
- Incentive programs having requirements, such as entry fees, and minimum acreage or time commitments, discourage participation;
- Not all programs have a specific riparian buffer component or the ability to differentiate between administrative overhead and implementation relating to establishing, protecting and maintaining riparian buffers;
- Federal and state incentive funds for riparian buffers are unstable, adversely affecting programs such as the Stewardship Incentive Program, Forestry Incentive Program, Environmental Protection Agency Section 319 Grants and Coastal Zone Section 6217 grants;
- Programs which mandate mitigation for forest land loss or a set-aside acreage designation often have requirements which do not recognize riparian forest buffer establishment as a legitimate compliance method;
- The number and variety of cost-share programs confuses landowners.

The entire incentive spectrum will be considered, although tax incentives and grants are generally recognized as the most effective. The major incentive categories are direct financial aid and tax/zoning enticements. Recently, state and federal cost-share programs have emphasized riparian buffers.

Strategies

- **Implement enabling legislation authorizing tax breaks for riparian forest buffer lands.** The 1998 General Assembly adopted Del. Paul Harris's House Bill 1419 (Appendix D). This authorizes localities to provide partial or total property tax relief for riparian forest buffer lands placed in perpetual conservation easement with a jurisdiction. This authorization became effective July 1, 1998.

- **Make Water Quality Improvement Fund money available to reimburse localities for revenue losses due to buffer land tax breaks.** This has been achieved. As a matter of policy, Governor Gilmore has indicated it is acceptable for localities to apply for Water Quality Improvement Fund grants to reimburse them for revenue lost due to allowing partial or total tax exemption of riparian forest buffer lands. However, in order to receive the reimbursements, local governments must ensure that the buffers for which tax breaks were provided meet certain standards set forth in the guidelines for the Water Quality Improvement Fund grants.

- **Seek enabling legislation to exempt riparian forest buffers from estate taxes.** By June 30, 1999, the Work Group will recommend legislative language to the Secretary of Natural Resources. This legislation will authorize localities to exempt riparian forest buffers from estate taxes. In addition, the Work Group will coordinate with Bay State partners to seek similar federal legislation.

- **Encourage localities to use stormwater utility fees for establishing riparian buffers.** Recently, Henrico County proposed an innovative approach to restore structural integrity and riparian buffers to many streams degraded by development. Plans call for this effort to be the centerpiece of Henrico's countywide watershed improvement program. Funds are to come from stormwater utility fees. The Chesapeake Bay Local Assistance Department has reviewed the conceptual plan and encouraged the county to gather needed data for prioritizing watersheds and streams. This project may be an excellent model for integrating stream and riparian buffer restoration with local stormwater management programs. As this project unfolds, the Work Group will communicate the concept, study the economics, and provide the results to other localities. If the project is as successful as expected, the Work Group will promote this model for use in other areas.

- **Seek Conservation Reserve Enhancement Program Funds through the USDA - Farm Services Administration.** This program is a modification of the USDA Conservation Reserve Program, used for several decades to take highly erodible or environmentally sensitive land out of agricultural production and restore it to more permanent, stable vegetation. Under the program, 10- or 15-year contracts pay rent to landowners for land placed in continuous vegetation or trees.

  Maryland was the first state to receive a USDA Conservation Reserve Enhancement Program Funds grant. Totaling $170 million, the grant is being used to encourage landowner establishment of forest and grass riparian buffers and restoration of wetlands. By December 31, 1998, Virginia will submit an application to the U.S. Department of Agriculture for a similar grant.

- **Consolidate and improve cost-share and grant programs.** By June 30, 1999, the Work Group will develop a matrix of funding assistance programs related to forest buffer restoration. The matrix will include links between programs that may be eligible for cross- matching or piggybacking. Hopefully, this will help landowners take full advantage of funding sources. The Work Group will contact funding agencies with programs that can be cross-matched or piggybacked, encouraging them to allow and promote these opportunities. Agencies can inform landowners of their options and work pro-actively with sister agencies to accomplish multiple grants. Other strategies are:
  - Explore the feasibility of giving higher priority to funding regional or multi-jurisdictional projects. The Work Group will contact agencies and organizations providing buffer restoration funding assistance to encourage higher priority for regional or other coordinated actions.
  - Within their agencies, Work Group members will endeavor to create categories of small, flexible grants for riparian buffers and stream restoration. These grants will encourage alternative watering systems and fencing for agricultural pasture situations.

- **Encourage flexibility in local zoning and subdivision requirements.** The Chesapeake Bay Local Assistance Department is working with Virginia's Tidewater localities to reconcile land management code conflicts. These conflicts impact implementing requirements in the Chesapeake Bay Preservation Act Regulations, including those about vegetated buffer areas.

  For example, the 100-foot wide buffer requirement is essentially a setback. Older lots having this requirement imposed after applying other subdivision setbacks may have too small an area on which to build legally. Local governments are encouraged to resolve such conflicts by easing the front street setback, rather than reducing the buffer setback width. As this effort progresses, such concepts will be communicated to other Virginia communities.

- **Promote expansion of local government land-use management tools.** The Work Group will continue studying the suitability of such programs as Cluster Development, Purchase-of-Development-Rights, Transfer-of-Development-Rights and effluent trading in Virginia. If these programs are deemed appropriate, the Work Group will support passage of legislation authorizing such mechanisms in local land use programs.

- **Seek increased funding for conservation easements through the Open Space Lands Preservation Trust Fund.** By June 30, 1999, the Work Group will evaluate public trust funds dealing with conservation easements. A report will be submitted to the Secretary of Natural Resources with recommendations to increase appropriations to one or more of these funding sources.

- **Explore small business assistance programs as funding sources.** Farmers and landowners making a living from their property are the original American small business owners. However, few participate in the small business assistance programs. Some programs may be appropriate to help landowners develop improved riparian buffer protection and explore alternative income possibilities from riparian forested buffers. By June 30, 2000, the Work Group will determine if such state financial assistance programs are available. Through this process, the Work Group will identify needed statutory and regulatory changes to use current or new small business assistance programs.

- **Establish recognition programs.** By June 30, 1999, the Work Group will decide if existing conservation programs and related recognition programs are appropriate to recognize landowners and organizations for their riparian buffer efforts. If new recognition programs are needed, the Work Group will submit a report to the Secretary of Natural Resources recommending their creation, including detailed recommendations about program mechanics and necessary legislation.

Objective 5- Promote Education and Outreach

Encourage Bay signatories to implement education and outreach programs about the benefits of riparian buffers and other stream protection measures.

This initiative identifies strategies, programs and partners to educate the public about riparian buffer benefits and encourage active support.

Comprehensive public education is the single most critical component of this initiative.

Education will increase awareness of the issues. It will educate target audiences on the benefits. It will teach them positive actions to take. Plus, it will motivate audiences to be dynamic players in Virginia's riparian buffer initiative.

Many ongoing or recently completed riparian buffer projects have been installed with little or no cost sharing. This occurs because the main reason landowners restore streamside forests is to be good natural resource stewards. They have learned about riparian buffer values and benefits from federal or state agencies, or private non-profit conservation groups.

At the same time, the value of outreach is difficult to measure and more challenging to accomplish in the wake of government fiscal austerity. Significant outreach must occur to meet Virginia's 610-mile pledge of new riparian forest buffers.

This vital endeavor will require funding to conduct a comprehensive public education campaign. The monies can be provided to one or more state agencies to increase involvement or to contract a private public relations firm.

Strategies

- **Initiate a major public relations campaign in concert with *American Forests*.** By December 31, 1998, the Work Group, with the Department of Forestry at the lead, will seek grant funds or a General Assembly appropriation. It will be key to ensure funding is adequate for an effective campaign. These funds will be used to hire a professional firm to develop and conduct a public education campaign promoting the Riparian Buffer Initiative.

  This campaign, *Virginia Releaf* or *Stream Releaf*, will be coordinated with *American Forests*, consistent with Bay Partner states. This will maintain a "sense of the Bay" and program continuity across state lines. This public education campaign, including evaluation, will include:
  - Enlisting participation of one or more famous native Virginia personalities from show business, sports, business, and government, as spokesperson(s);
  - Integrating a single message among stakeholders;
  - Targeting "absentee landowners" who are not full-time residents of their land and may not be fully aware of the initiative or have the same environmental commitment as they would for lands where they reside; and
  - Creating a "neighbor to neighbor" program, increasing continuity and proximity among riparian landowners

- **Promote private sector involvement.** By October 31, 1998, the Work Group will enlist the services of *American Forests' Stream Releaf* Campaign and *Businesses for the Bay*. Associated public information materials will be used to promote and engage the private sector in conserving and restoring riparian buffers.

Private industry involvement in the riparian buffer initiative is integral to achieving riparian forest buffer restoration of 610 miles by 2010. Recognizing the need to be fiscally responsible, the private sector offers a major funding alternative. Fortunately, many private industries currently are seeking a role in environmentally friendly activities. For example, a local Virginia quarry company donated rock for streamside restoration. Other strategies for private sector involvement are to:

- Incorporate the private sector in new public recognition programs;
- Develop demonstration projects on private land, especially highly-visible corporate sites;
- Encourage Virginia's nurseries to grow more native riparian plants for buffer use; and
- Host a roundtable to encourage private sector riparian forest buffer efforts.

- **Coordinate with young people's education programs.** By June 30, 1999, the Work Group will determine if sufficient riparian buffer information is in existing environmental education programs for children. These programs include Project Learning Tree, Project Wet, and Project Wild. If not, the Work Group will cooperate with program sponsors to incorporate such data.

- **Promote activities of local watershed organizations.** Linking with local watershed protection groups and other community organizations, the Work Group will promote local stream and riparian buffer efforts.

- **Increase demonstration areas in each tributary.** On an ongoing basis, the Work Group will partner with participating conservation agencies, local governments, and private businesses and organizations to establish highly visible riparian buffer demonstration areas around the state.

- **Provide public information through real estate companies and chambers of commerce.** Three areas — the Eastern Shore, the Middle Peninsula, and the Northern Neck — have developed regional *Almanacs*. The publications, funded by The Chesapeake Bay Local Assistance Department and the Virginia Coastal Resources Management Program, include a wealth of practical natural resource information. Chambers of commerce and real estate companies, promoting interest and economic development in their regions, are distributing these handsome but inexpensive coffee-table editions.

  Future editions of these *Almanacs* could incorporate riparian buffer information to increase public awareness. Furthermore, organizations in other regions of the Commonwealth could develop their own editions.

- **Continue cross training among participating state and federal agencies.** The Work Group will continue to provide a forum for cross training administrative and field staffs about sister agency programs. This strategy will be designed to help each agency understand how the different agencies' riparian buffer programs link and overlap, and to avoid program requirement conflicts. Ideally, this will make it easier for landowners to get assistance, by minimizing confusion from working with multiple agencies.

  For example, there is a single soil and water quality conservation plan for farmers that requires them to meet multiple agency criteria. Also, the Work Group could develop a simple method for landowners to take advantage of multiple funding sources from various agencies that may match or piggyback one another.

- **Link riparian buffer restoration data with the Virginia Geographic Information Network.** After July 1, 1999, the Department of Forestry will provide the Virginia Geographic Information Network with computer links to any updated geographic information system files and maps. These will show where riparian forest buffers are and their condition. The network will be a clearinghouse for this data. The public will be able to access these maps through the network's home page, which is one more link in educating the public about riparian forest buffers.

Objective 6- Target, Track and Conduct Research

Increase the level of scientific and technical knowledge of the function and management of riparian forest and other buffers, as well as their economic, social, ecological, and water quality values.

This initiative develops targeting and tracking strategies and efforts to support riparian buffer conservation and restoration.

As Virginia implements the Riparian Buffer Initiative, it is essential that two key actions transpire. First, efforts must be targeted where the greatest water quality and living resource benefits can be achieved. Second, it is critical that Virginia tracks the progress of the numerical restoration goal and the general conservation goal pertaining to riparian buffers.

In 1996, it was determined that the condition of the Chesapeake Bay watershed's riparian forest buffers needed assessing. To accomplish this, the EPA Bay Program Office contracted with Pennsylvania State University to perform computer-modeling work synthesized with a Geographic Information System and satellite image technology. Each Bay state partner has received the 1996 imagery and protocols for adequate riparian forest buffer determination.

Working together, the Virginia Department of Forestry and the Department of Conservation and Recreation have organized this data in the context of Virginia's 494 watershed sub-units. This mapping provides the tracking starting point, and the data is available to the public.

Strategies

- **Target riparian buffer efforts where the greatest benefits can be achieved.** Virginia's targeting mechanisms under development or in use, as well as program coordination involving targeting, are addressed in the first two strategies of Objective 1 (see Restore Existing Riparian Buffers).

- **Establish a riparian buffer-tracking program.** The Work Group will distribute the Riparian Buffer Inventory Forms (Appendix C) and collect them twice a year through the Department of Forestry's central clearinghouse. Semi-annually, the Work Group will report progress to the EPA Bay Program Office.

- **Develop a system to inventory and track progress.** The Department of Forestry will use the Penn State data set, modified to fit Virginia watershed boundaries, as the initial riparian buffer tracking and inventory system. As technology and data resolution improve, the system will be upgraded. The Work Group will coordinate with the EPA Bay Program Office about periodic inventory updates.

  Currently, Bay state partners have discussed conducting an inventory every five years using a similar snapshot approach, continually improving data resolutions. If this Bay-wide inventory is not repeated, the Work Group will pursue grant funding to secure an inventory every five years, beginning in 2001.

- **Pursue riparian buffer research opportunities.** The ecological benefits of riparian buffers are known. However, the relative costs and benefits of riparian buffer restoration are generally unmeasurable for many Virginia areas and the Bay watershed.

  Only recently have tools such as the American Forests *Citygreen* computer program shed new light on the quantifiable aspects of forest buffers, such as temperature moderation, stormwater flow retention, and nutrient reduction. These are based on specific site and buffer characteristics. *Citygreen* is now being customized to reflect vegetation and conditions in the Bay watershed and will be used in Virginia when available. More specific strategies are:
  - By December 31, 1998, the Work Group will establish a multi-disciplinary research team to pursue riparian buffer research in Virginia;
  - The research team will intensify research efforts through state and federal programs to examine buffer costs and benefits;
  - During 2000, the research team will conduct a study to establish the effect of riparian forest buffers on real estate values;
  - During 2001, the research team will conduct a study to determine the average cost per pound of nutrients prevented from entering waterways by riparian buffers; and
  - The research team will look for opportunities and funding sources to conduct further research, enhancing understanding of riparian buffer functions and effectiveness in various physiographic settings and of the most effective methods of establishing riparian buffers.

OBJECTIVE/STRATEGY	1998	1999	2000	2001	2002	2004	2006	2008	2010	2011
RESTORE MISSING/INADEQUATE RIPARIAN BUFFERS						On-Going				
• Identify restoration sites						On-Going				
• Develop local watershed-based plans for specific actions						On-Going				
• Establish education outreach to volunteer groups										
• Review existing public information	9/30									
• Complete survey of organizations	12/31									
• Include materials in information and training		3/31								
• Provide sufficient planting stock										
• Discuss with state and private nurseries	12/31									
• Develop timetable for providing plant stock		6/30								
• Plant buffers and provide maintenance information						On-Going				
• Bay watershed benchmarks (cumulative miles)			80		150	300	450	550	610	
CONSERVE RIPARIAN BUFFERS						On-Going				
• Document riparian buffer conservation on State and National Forest lands						On-Going				
• Identify riparian buffers in easements held by Land Trusts and Conservancies						On-Going				
• Survey to identify Land Trusts/Conservancies	12/31									
• Review typical easement language and develop model language about riparian buffers										
• Determine riparian buffers in easements due to local government tax breaks						On-Going				
• Establish an appropriate tracking mechanism	12/31									
• Determine riparian buffers in easements through USDA programs						On-Going				

OBJECTIVE/STRATEGY	1998	1999	2000	2001	2002	2004	2006	2008	2010	2011
• Establish education outreach to volunteer groups										
• Review existing public information	9/30									
• Complete a survey of organizations	12/31									
• Include materials in information and training		3/31								
• Coordinate goals and priorities with state and local integrated watershed management programs						On-Going				
ENHANCE PROGRAM COORDINATION AND ACCOUNTABILITY						On-Going				
• Establish a Virginia Riparian Buffer Work Group	9/1									
• Obtain an Executive Order addressing riparian buffers on state-owned lands										
• Ask Secretary of Natural Resources to ask the Governor for an Executive Order	10/31									
• Governor executes Order	12/31									
• Develop Memoranda of Agreements										
• Create Memorandum of Agreement between Virginia and *American Forests*	9/30									
• Identify and agree upon specific agency roles in the riparian buffer program	12/31									
• Execute Memoranda of Agreements between participating agencies and the Department of Forestry		6/30								
• Promote private sector involvement										
• Begin coordinating with *American Forests*	10/31									
• Designate Department of Forestry and Soil and Water Conservation Districts as program field contacts	8/31									
• Develop a riparian forest buffer source book to be reviewed and updated annually	12/31									
• Initiate single progress tracking system	9/1									

OBJECTIVE/STRATEGY	1998	1999	2000	2001	2002	2004	2006	2008	2010	2011
• Develop spot-check tracking database										
• Department of Forestry to establish data base	12/31									
• Work Group agrees on process for using the data base to randomly select spot-check sites		6/30								
• Begin annual progress reports to the Secretary of Natural Resources		9/30								
• Establish a program to coordinate and support volunteer activities		6/30								
• Assess need for additional state staff		8/1								
ENHANCE INCENTIVES						On-Going				
• Implement enabling legislation authorizing tax breaks for riparian forest buffers lands in easements	7/1									
• Make local government revenue losses due to buffer land tax breaks eligible for reimbursement from Water Quality Improvement Fund grants	Done									
• Seek enabling legislation to exempt riparian forest buffers from estate taxes		6/30								
• Encourage localities to use stormwater utility fees for establishing riparian buffers						On-Going				
• Seek Conservation Reserve Enhancement Program funds from the U.S. Department of Agriculture	12/31									
• Consolidate and improve cost-share and grant programs		6/30 — and				On-Going				
• Encourage flexibility in local subdivision and zoning requirements						On-Going				
• Promote expansion of local government land-use management tools						On-Going				
• Seek increased funding for conservation easements through the Open Space Lands Preservation Trust Fund		6/30								

OBJECTIVE/STRATEGY	1998	1999	2000	2001	2002	2004	2006	2008	2010	2011
• Explore small business assistance programs as funding sources										
• Assess the availability of existing State small business assistance programs that may be applicable to this program			6/30							
• Establish appropriate recognition programs		6/30								
PROMOTE EDUCATION AND OUTREACH						On-Going				
• Initiate a major public relations campaign in concert with American Forests	12/31									
• Enlist private sector support	10/31									
• Coordinate with young people's education programs										
• Assess the adequacy of riparian buffer information in existing curricula		6/30								
• Promote activities of local watershed organizations						On-Going				
• Increase demonstration areas in each tributary						On-Going				
• Provide public information through real estate companies and local Chambers of Commerce						On-Going				
• Continue cross-training among participating state and federal agencies						On-Going				
• Link buffer restoration data with the Virginia Geographic Information Network		7/1 — and				On-Going				
TARGETING, TRACKING AND RESEARCH						On-Going				
• Target buffer restoration efforts where the greatest benefits can be achieved						On-Going				
• Establish a buffer tracking program						On-Going				
• Develop a system to inventory and track progress	Done									
• Repeat the initial GIS inventory every five years				6/30			6/30			6/30

OBJECTIVE/STRATEGY	1998	1999	2000	2001	2002	2004	2006	2008	2010	2011
• Support research, monitoring, and technology transfer						On-Going				
• The Work Group will establish a multi-disciplinary research team	12/31									
• The research team will intensify efforts to examine the costs and benefits of riparian buffers						On-Going				
• The research team will conduct a study on the effect of riparian forest buffers on real estate values			6/30							
• The research team will conduct a study to determine the average cost per pound of nutrients prevented by riparian buffers from entering waterways				6/30						
• The research team will pursue opportunities for research to refine our understanding of riparian forest buffer function and effectiveness in various physiographic settings						On-Going				